August 7, 1952

Dear Ed:

From your silence I conclude (I hopencorrectly) that you have elected to do the fuss-work over our paper. I am enclosing mounted prints of photographs, figures "A, B & C".

We are leaving on our vacation in about 9 days. The chances of mail being correctly forwarded are sufficiently uncertain that it would probably be better for you to return the completed manuscript directly to Wenrich (Zoology, U. Pa.), unless it can reach here before I leave. If you can arrange a copy, I will try to see that it is forwarded to me, so that I can have a chance to study it. If any changes are suggested, then I will have an opportunity to consult you. I don't know whether we will see proof in galley or in pages, but do not foresee any difficulties.

The latest word from the lab. is a transduction in E. coli K-12. I emphatically do not want to mention it anywhere in print until we know more about it, but it is something to keep in mind, and tread softly. Only one marker has so far been transducible-- Gal_4- to +, which Esther showed to be very closely linked to lysogenicity. Lambda "lwoffates" from Gal+ carry the agent, which is almost certainly included in lambda particles. The transduced cells are generally an <u>unstable</u> Gal+, often throwing the original Gal-. This is the best evidence that we have a valid induction, and not selection of spontaneous Gal+ etc..., for the occasional Gal+ reversions have never shown this instability. The system is a rare opportunity to correlate sexual recombination and transduction in the same system. The leading hypothesis is that lambda provirus is attached to a chromosomal site, and that closely linked factors may be included in chromosomal fragments which fortuitously "contaminate growing phage particles. When inoculated into a new host the fragments behave as an additional small chromosome. Unlike Salmonella, the fragment does not readily "cross over" with the regular chromosome, and the instability is a result of occasional loss of the fragment. In Salmonella any marker can be transduced, perhaps because the provirus is not so strictly localized in the lysogenic bacteria. We are looking for additional markers in the immediate vicinity of Gal in hopes of mapping the fragment, but so far this is the only locus that has responded.

Sincerely,

Joshua Lederberg

Dr. E. L. Tatum
Stanford University